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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,111	06/20/2003	Lucina Galina-Pantoja	P05551US01	7776

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EXAMINER	
NOBLE, MARCIA STEPHENS	
ART UNIT	**PAPER NUMBER**
1632	

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/600,111	GALINA-PANTOJA ET AL.	
	Examiner	Art Unit	
	Marcia S. Noble	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/13/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,9,18,25,32,39,46 and 53* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,9,18,25,32,39,46 and 53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/06/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 1,3-8,10-17,19-24,26-31,33-38,40-45,47-52 and 54-58.

DETAILED ACTION

1. Applicant's election of Group II, claims 2, 9, 18, 25, 32, 39, 46, and 53 with a species election of pig, in the reply filed on 2/13/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1, 3-8, 10-17, 19-24, 26-31, 33-38, 40-45, 47-52, and 54-58 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected subject matter, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 2/13/2006.

Priority

2. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. [1] as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure in the ADS of the prior-filed application, Application No. 60/370,725, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.

The subject matter of Application No. 60/370,725 pertains to systems and methods for performing location measurement using a wideband radio device. This subject matter is not consistent with the subject matter of the instant invention.

Specification

3. The use of trademarks LSM® (p. 7, line 26), Pfizerpen® G (p. 12, line 20), Garacin® (p. 12, line 20), Suvaxyn® (p. 12, line 33), Respinfend® (p. 12, line 33), and Neo-Terramycin® (p. 14, line 14) has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Information Disclosure Statement

4. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a

separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

References are listed on p.35 in the specification and should be deleted from the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 2, 9, 18, 25, 32, 39, 46, and 53 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for measuring and predicting lifetime average daily gain (ADG) among two or more pigs comprising providing two or more pigs, determining in each pig the quantity of CD16/CD2 double-staining positive antigen-expressing PBMC cells, determining a statistically significant association between an pig's quantity of CD16/CD2 double-staining antigen-expressing PBMC cells and AGD, does not reasonably provide enablement for above described method as a method for selecting for robustness or for the measurement of CD16/CD2 quantity in any cells and also does not enable the use of this method for selecting for the pig in order to improve robustness based on association. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make/use the invention commensurate in scope with these claims.

While determining whether a specification is enabling, one considers whether the claimed invention provides sufficient guidance to make or use the claimed invention, if not, whether an artisan would require undue experimentation to make and use the claimed invention and whether working examples have been provided. When determining whether a specification meets the enablement requirements, some of the factors that need to be analyzed are: the breadth of the claims, the nature of the invention, the state of the prior art, the level of one of ordinary skill, the level of predictability in the art, the amount of direction provided by the inventor, the existence of working examples, and whether the quantity of any necessary experimentation to make or use the invention based on the content of the disclosure is "undue".

Furthermore, USPTO does not have laboratory facilities to test if an invention will function as claimed when working examples are not disclosed in the specification, therefore, enablement issues are raised and discussed based on the state of knowledge pertinent to an art at the time of invention, therefore skepticism raised in the enablement rejections are those raised in the art by artisans of expertise.

The specification discloses many aspects of the claimed method is to select pigs using the determined relationship between CD16/CD2 positive PBMC cells and the measurements of robustness. In the instant invention, the disclosed purpose of the instant invention was disclosed as being identify the best breeding animals for livestock production (p. 3, line 31) and develop tools and identify tools that can identify and/or sort the most suitable animals for particular production systems (p. 4, lines 9-11). Applicant defines "robustness" as intended to refer to the general condition in an animal

characterized by higher than average (1) lifetime average daily gain, (2) hot carcass measurements, and (3) feed conversion (p. 6 lines 8-12). Applicant discloses the isolation of PBMC and further identification of CD16/CD12 positive PBMC, which is disclosed as selecting for NK cells (p. 14, lines 29-32), and sorting and quantifying cells by flow cytometry (p. 17, lines 5-13). The specification also discloses measurements of growth parameters to determine robustness and determine the relationship between the number of CD2/CD16 positive cells and robustness using SAS mixed models analysis (p.19, lines 24-37). The specification also discloses results demonstrating a negative correlation between average daily gain and the quantity of CD2/CD16 PBMC cells (p.23, lines 1-14). However, the specification does not disclose a method or examples of using the above data to select for robustness as the final step in the claimed method requires.

In examining the instant specification and claims, the breath of "selection" or "selecting" "for robustness" must be considered. As mentioned above, in the instant invention selection is meant to identify the best production animals. The specification does not disclose the ultimate outcome of the above described methods which is the pigs that were identified as the "most robust". Furthermore, the term "selection" in the livestock production art encompasses a broader meaning than implied by the specification. In the livestock production art, "selection" encompasses a breeding strategy and system and short and long-term impacts to affect such a breeding plan. The instant specification does not disclose the use of the instant methods to develop, implement, and analyze breeding based on the relationship between CD16/CD2 PBMC

cells. Given that the specification dose not define "selection" specifically and given that the purpose of the instant method is for improvement of livestock production systems, the broader interpretation of "selection" in the claimed invention is encompassed, but it not enabled.

Furthermore, because of the breadth encompassed by selection and because no selection over progeny have been disclosed, an artisan would not know if the instant invention would truly work as a tool to select for superior, more robust pigs. Inheritance is of measurable traits, such as the quantity of CD16/CD2 positive PBMC cells, is affected by many factors such as environment, linked gene loci, number of alleles present, etc.... Therefore, one or any of these factors could overcome or mask any differences associated with the selection for robustness. An artisan would look for indications that instant method of selection for robustness would be effective on the farm in a facilitated improved breeding. Again, the specification provides such an indication or working examples, therefore an artisan would not know if that they could sucessfully use the instant method to select for robustness. Furthermore, an artisan would have to use the method over a long time period to determine if the method truly selected for robustness and this level of experimentation would be considered undue.

As mentioned above, the method is drawn to selecting for "robustness", which Applicant has defined as the general condition in an animal characterized by higher than average (1) lifetime average daily gain, (2) hot carcass measurements, and (3) feed conversion (p. 6 lines 8-12). However, in the art and within this application the meaning of "robust" or "robustness" encompasses more than Applicants definition. The

specification states, "...degradation of health status, and concomitant reduction in the performance of the individual during multiplication, is observed in many plant and animal systems....today's livestock industry has a need for robust animals that perform well under different commercial settings" (p. 4, lines 3-16). This suggests that "robustness" is also a measure of overall health and immunity of an animal in the face of many environmental factors, which encompasses many more biological factors than weight gain, carcass measures, and feed conversion. Given this broader meaning of robustness in the art and that the specification even intends this broader meaning of "robustness", this broader meaning must be considered for enablement. However, although this broader meaning is disclosed and intended in the instant application, the specification only provides support for lifetime ADG and its association with CD2/CD16 positive PBMC cells and not the robustness.

The specificaiton discloses a significant association between ADG during the lifetime of a pig and the quantity of CD2/CD16 postitive PBMC cells (p. 21, lines 16-19). The specification also discloses that these results indicate an increase of 1% in CD2/Cd16 positives PBMC cells would predict a reduction in lifetime ADG of 0.0018 (p. 23, linesa 1-3). The specification also teaches that pigs with a lower proportion of double positive cells reached an offtest weight 10 day sooner than pigs with a higher proportion of double positive cells (p.23 lines, 9-16). However, the specification does not provide guidance for an association between CD2/CD16 positive PBMC cells and hot carcass measurements or feed conversion as robustness is defined in the specification. Therefore, while being enabled for the association between CD2/CD16

positive PBMC and ADG, the specification is not enabled for association with other defined or broader measures of robustness.

In conclusion because the specification only provides support for an association between cd16/cd2 positive PBMC cells and lifetime ADG of pigs, the instant specification and invention is only enable for a method for measuring and predicting lifetime average daily gain (ADG) among two or more pigs comprising providing two or more pigs, determining in each pig the quantity of CD16/CD2 double-staining positive antigen-expressing PBMC cells, determining a statistically significant association between an pig's quantity of CD16/CD2 double-staining antigen-expressing PBMC cells and lifetime AGD.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2, 9, 18, 25, 32, 39, 46, and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The instant claims recite, "selecting" or "selection". The metes and bounds of this term is unclear by its uses in the claims and specification. Selection may be defined as sorting in the instant invention or could have broader implications in the driving a genetic change for improvement of livestock product. It seems that both my be implied in the instant invention, but to what extend is not clear.

Relevant Art

7. A rejection under 35 U.S.C. 103(a) as being unpatentable over Solano-Aguilar et al. (J Immuno Methods 241:185-199, 2000), Saalmuller et al (Vet Immuno Immunopath 60:207-228, 1998), and Stull et al. (J Anim Sci 77:70-74, 1999), in view of Moretta, A et al (Immunol Rev 111:145-175, 1989) was considered.

Solano-Aguilar et al teach a method of collecting PBMC from pigs and identifying lymphocytes by immunostaining and sorting or quantifying said cells by flow cytometry (p. 190, col 2, section 3.6 and 3.7 to p.192 section 3.8). They also provide motivation for combining this method with the use of other antibodies to identify, isolate, and characterize other lymphoid subsets. They states that the characterization of lymphoid subsets is of great important for understanding the mechanism and interactions of normal and pathological immune responses in the pig (see abstract), therefore characterization with other immunomarkers is needed to further characterize the different lymphoid subsets in pigs. Solano-Aguilar et al do not teach the specific use of CD16 and CD2 antibodies as immunomarkers, nor do they teach a method of determining a statistically significant association between CD2/CD16 positive PBMC and robustness.

Saalmuller et al teach the public availability of antibodies that recognize swine CD2 and swine CD16 in a report from the Second International Swine Cluster Differentiation Workshop where their objective was to standardize the assignment of monoclonal antibodies reactive with lymphocytes differentiation antigens (par bridging p. 208 and 210). They teach monoclonal antibodies that recognize CD2 and CD16 on

swine lymphocytes (p. 225, last par). Saalmuller et al do not teach a method of determining the quantity of CD2/CD16 positive cells nor do they teach a method of determining a statistically significant association between CD2/CD16 positive PBMC and robustness. Moretta et al teach a motivation to use CD2 and CD16 swine specific monoclonal antibodies, such as those taught by Saalmuller et al., in a method of determining CD2/CD16 positive PBMC cells. Moretta et al states that presence of CD2 and CD16 surface receptors identify and are involved in mediating NK-cell triggering (see abstract), and therefore serve as unique identifiers of activated NK lymphocytes.

Stull et al. teaches a method to determine a statistical association between age or teat order with average weight gain in commercially grown pigs form weaning to market age. Skull et al teaches a method of multiple measures of pig weights at various ages to determine average weight gain, a defined measure of robustness (p. 71, col 1, par 2, lines 1-5). They also teach a statically analysis using a repeated measures ANOVA to determine the relationship between teat order and average daily gain (p. 71, col 2 par 2). This statistical analysis can be used to determine the association between the number of CD2/CD16 positive PBMC cells and average weight gain. Stull et al also provide motivation to use this type of analysis in determining the association between performance traits such as weight gain, and a marker of lymphocytes as being a measure of stress and that the development of reliable performance and physiological indicators may assist in identify stressors in commercial growing pigs that can impede on growth performance (p. 70, col 1 par 1, lines 1-5). Stull et al do not teach a method of determining CD2/CD16 positive PBMC.

The above art indicates that the methods and tools to make or use the instant invention were present in the art. However the art did not provide a motivation for the use of the specific markers CD2 and CD16 in PBMC and an associated with lifetime AGD, therefore the rejection was not made.

8. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marcia S. Noble whose telephone number is (571) 272-5545. The examiner can normally be reached on M-F 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marcia S. Noble